

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Applicant: Udayakumar et al.
Application No.: 10/620,516
Filed: July 16, 2003
For: HYDROGEN BARRIER FOR PROTECTING FERROELECTRIC
CAPACITORS IN A SEMICONDUCTOR DEVICE AND METHODS
FOR FABRICATING THE SAME

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

1. Pursuant to 37 C.F.R. 1.97 and 1.98, and in compliance with 37 C.F.R. 1.56, the Office's attention is directed to the patents, pending applications, publications and other information listed on the attached PTO-1449. A copy of each listed document is enclosed except for: (a) pending applications or (b) those previously cited or submitted to the Office in the following application(s) upon which this application relies for an earlier filing date under 35 U.S.C. 120:

Serial No.: _____

Filing Date: _____

Regarding any document, publication or other information for which a date is not given on the attached PTO-1449, Applicant(s) believe(s) the same may qualify as "prior" art to this application and should be treated accordingly, although Applicant(s) reserve(s) the right to contest the prior art status of any document, publication or information, should issue arise.

2. Regarding each listed document that is not in the English language, an English-language translation accompanies this Statement as indicated on the attached PTO-1449 or a concise explanation of the relevance of the document is set forth in the following document(s):

- (a) ____ Copy of each English language version of a search report indicating the degree of relevance found by the foreign office of each document being submitted from the search report.
- (b) ____ Attachment entitled "Concise Explanation of Relevance of Non-English Language Documents".

3. Pursuant to 37 C.F.R. 1.97(b) this Statement is being filed (one must be checked):

- (a) ____ Within 3 months of the filing date or date of entry into the National Stage.
- (b) X Before the mailing date of a first Office Action on the merits. If this Statement is not filed before the mailing date of a first Office Action on the merits, the required certification is given below or, in the absence thereof, the Office is authorized to charge the required fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 20-0668 for consideration of this Statement.
- (c) ____ Before the mailing date of a first Office Action on the merits after a first or second submission under 37 C.F.R. 1.129(a).

d) ___ After the period set forth in 37 C.F.R. 1.97(b) but before the mailing date of either a final action or a notice of allowance.

(1) ___ The required certification is given below, or

(2) ___ Enclosed is a check covering the fee set forth in 37 C.F.R. 1.17(p) for consideration of this Statement, or

(3) ___ Charge the fee set forth in 37 C.F.R. 1.17(p) to Deposit Account No. 20-0668

(e) ___ After the mailing date of either a final action or a notice of allowance, but before payment of the issue fee. Petition hereby is made for consideration of this Statement and the required certification is indicated below.

(1) ___ Enclosed is a check covering the fee set forth in 37 C.F.R. 1.17(i)(1), or

(2) ___ Charge the fee set forth in 37 C.F.R. 1.17(i)(1) to Deposit Account No. 20-0668.

4. Certification (if applicable)

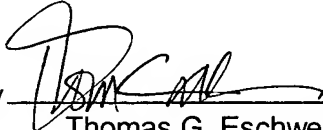
(a) ___ The undersigned hereby certifies that each item of information contained in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than 3 months prior to the filing of this Statement.

(b) ___ The undersigned hereby certifies that no item of information contained in this Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the undersigned's knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. 1.56(c) more than 3 months prior to the filing of this Statement.

5. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-0668.

Respectfully Submitted,

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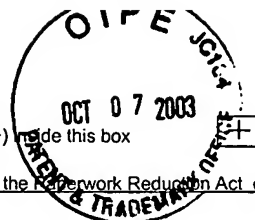
CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper or item referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first-class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: October 3, 2003

 _____
Christine Gillroy

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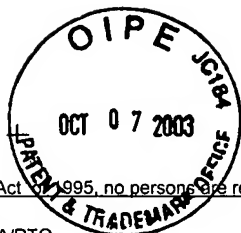
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Substitute for Form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)			Complete If Known		
			Application Number	10/620,516	
			Filing Date	July 16, 2003	
			First Named Inventor	Udayakumar et al.	
			Group Art Unit		
Examiner Name					
Sheet	1	of	2	Attorney Docket No.	TI-35996

U.S. PATENT DOCUMENTS						
Exam. Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Doc.	Date of Pub. of Cited Doc. (mm-dd-yyyy)	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
	AA	5,452,178		Emesh et al.	09/19/1995	Entire Document
	AB	5,972,722		Visokay et al.	10/26/1999	Entire Document
	AC	6,090,697		Xing et al.	07/18/2000	Entire Document
	AD	6,177,351	B1	Beratan et al.	01/23/2001	Entire Document
	AE	6,242,299	B1	Hickert	06/05/2001	Entire Document
	AF	6,261,967	B1	Athavale et al.	07/17/2001	Entire Document
	AG	6,291,251	B1	Nam	09/18/2001	Entire Document
	AH	6,423,592	B1	Sun	07/23/2002	Entire Document
	AI	6,495,413	B2	Sun et al.	12/17/2002	Entire Document
	AJ	6,528,386	B1	Summerfelt et al.	03/04/2003	Entire Document
	AK	6,534,809	B2	Moise et al.	03/18/2003	Entire Document
	AL	6,576,482	B1	Aggarwal et al.	06/10/2003	Entire Document
	AM	6,611,014	B1	Kanaya et al.	08/26/2003	Entire Document
	AN	2001/0034106	A1	Moise et al.	10/25/2001	Entire Document
	AO	2001/0044205	A1	Gilbert et al.	11/22/2001	Entire Document

FOREIGN PATENT DOCUMENTS							
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		Office ³	Number ⁴	Kind Code ² (if known)			
	BA						
	BB						
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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Exam. Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CA	"FeRAM Tutorial", ALI SHEIKHOESLAMI and P. GLENN GULAK, A survey of circuit Innovations in Ferroelectric random-access memories, Proceedings of the IEEE, Vol. 88, No. 3, May, 2000, 3 pages, taken from the Internet at: http://www.eecg.toronto.edu/-ali/ferro/tutorial.html .	
	CB	"A survey of Circuit Innovations in Ferroelectric Random Access Memories", ALI SHEIKHOESLAMI and P. GLENN GULAK, Proceedings of the IEEE, Vol. 88, No. 5, May, 2000, pp. 667-689.	
	CC	"Generic CVD Reactor", CVD Basics, DANIEL M. DOBKIN, Dec. 7, 2001, 3 pages, taken from the Internet at: http://www.batn-t.com/nigmatics/semiconductor_processing/CVD_Fundamentals/introdu...	
	CD	"Physical Vapor Deposition", Cougar Labs, Inc., Dec. 7, 2001, 9 pages, taken from the Internet at: http://www.cougarlabs.com/pvd1.html .	
	CE	"The Hydrogen Content of Plasma-Deposited silicon Nitride", W. A. LANFORD and M. J. RAND, American Institute of Physics, J. Appl. Phys. 49(4), April, 1978, Pgs. 2473-2477.	
	CF	"Free Energy Model for the Analysis of Bonding in a-Si _x N _y H _z Alloys", Z. YIN and W. SMITH, J. Vac. Sci. Technol. A, Volume 9, No. 3, May/June, 1991, pg. 972.	



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PTO/SB/08A (08-00)

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				Examiner Name	
Sheet	2	of	2	Attorney Docket No.	TI-35996

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Exam. Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CG	"Comparison Between HCP CVD and PECVD Silicon Nitride for Advanced Interconnect Applications", J. YOTA, M. JANANI, L.E. CAMILLETI, A. KAR-ROY, Q.Z. LIU, C. NGUYEN, M.D. WOO J. HANDER, and P. VAN CLEEMPUT, IEEE, 2000, pgs. 76-78.	
	CH	"Hydrogen Role on the Properties of Amorphous Silicon Nitride", F. DE BRITO MOTS, J.F. JUSTO and A. FAZZIO, Journal of Applied Physics, Volume 86, Number 4, August 15, 1999, pgs. 1843-1847.	
	CI		
	CJ		
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	CM		
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	CO		
	CP		

Examiner Signature		Date Considered	
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²EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Unique citation designation number. ²Applicant is to place a check mark here if English Translation is attached.

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